Schena, Cristeen

From: Smagula, Amy <Amy.Smagula@des.nh.gov>
Sent: Monday, April 15, 2013 3:58 PM
To: Nelson, Eric; Snook, Hilary
Subject: RE: Asian clam
Attachments: Merrimack River South_Merrimack Sites.pdf; Cobbetts Pond Windham Asian Clam Sampling Points.pdf; Long Pond Pelham Asian Clam Sampling Points.pdf; Merrimack River North_Bow-Hooksett Sites.pdf; Asian Clam Study Tasks, Personnel and Time.xls; DRAFT SOP for Asian Clam Monitoring_2013.doc

Here's what I've got so far. I don't want to go further with the Scope of Work until I know you guys are on board with scope of monitoring at sites outlined.
Attached you will find:

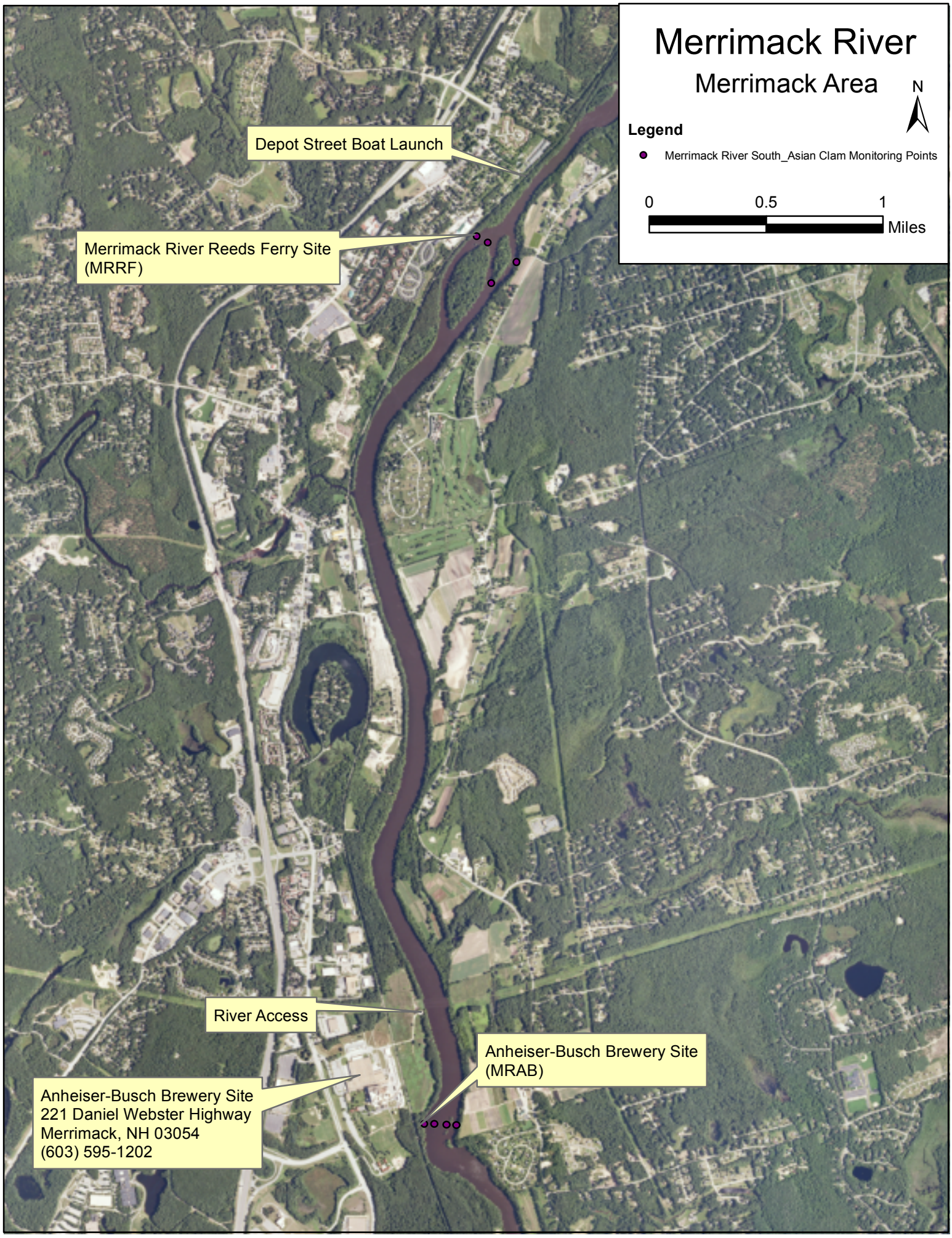
- Four maps showing the different sample locations
- An Excel Spreadsheet that is starting to outline activities, number of samples, time, staff, etc
- A start at a scope of work (at least the bones), that will be filled out more after I hear back from you.

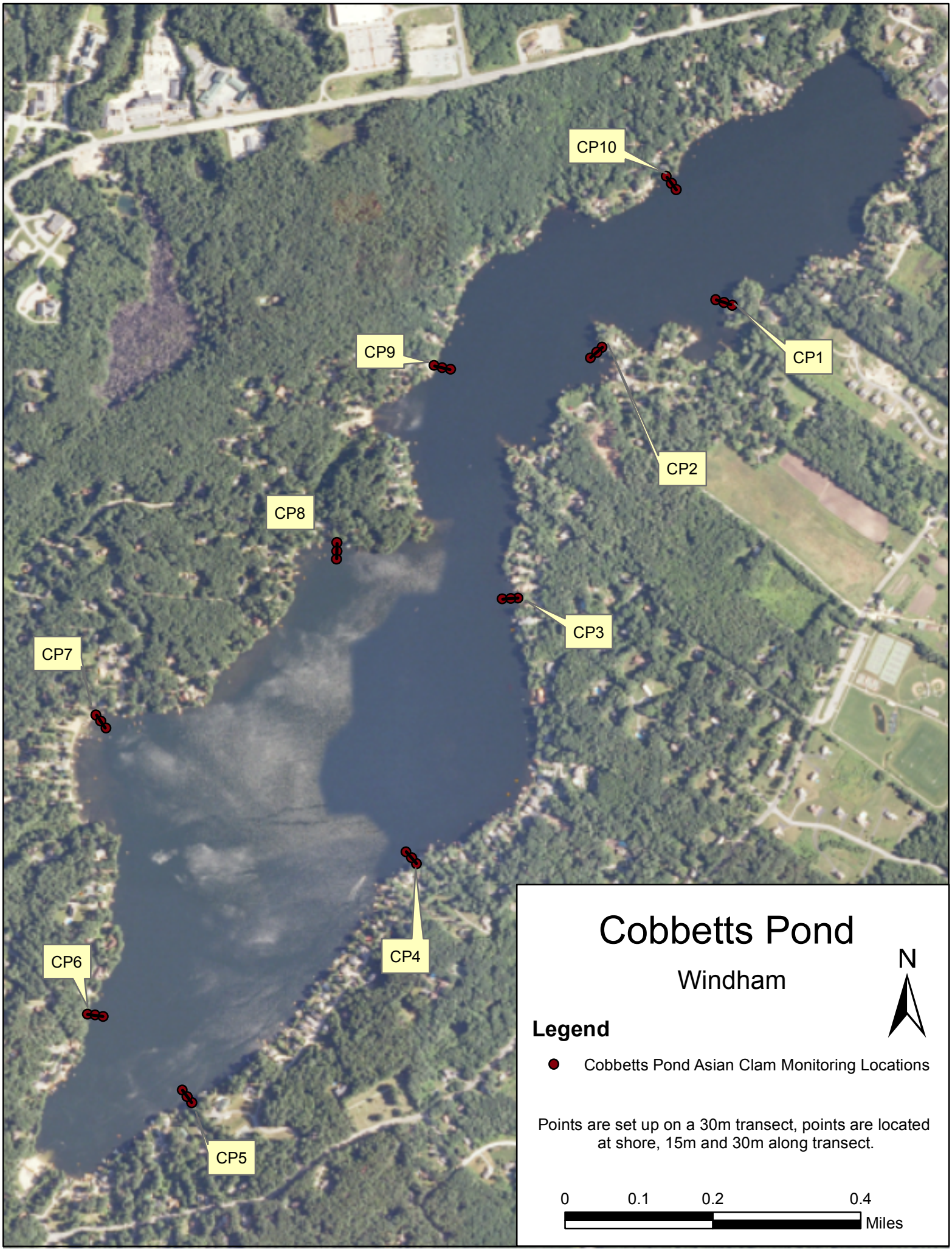
Amy
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Amy P. Smagula
Limnologist/Exotic Species Program Coordinator
NH DES
29 Hazen Drive
Concord, NH 03301
Phone: 603-271-2248
Fax: 603-271-7894
Email: Amy.Smagula@des.nh.gov

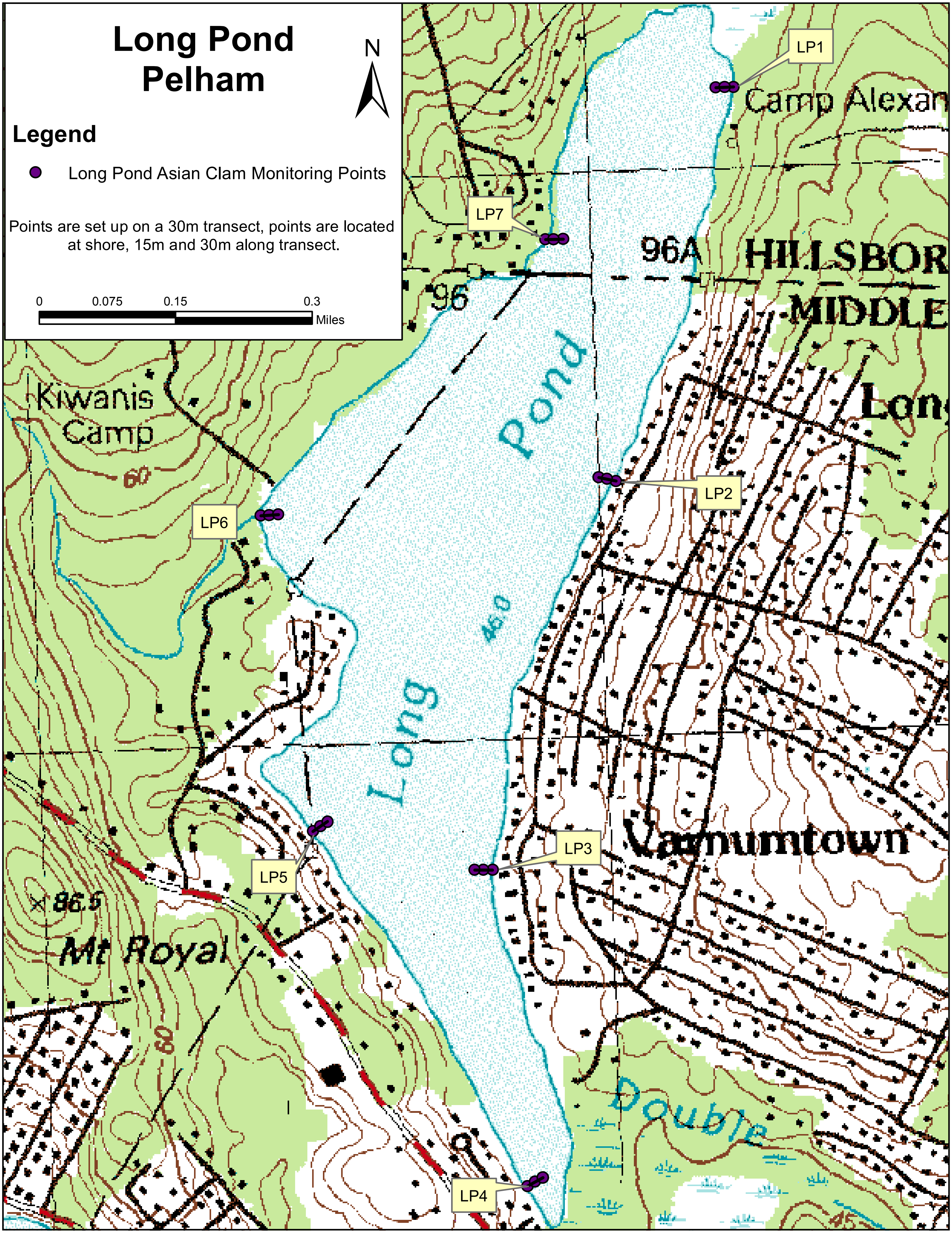
-----Original Message-----
From: Nelson, Eric [mailto:nelson.ericp@epa.gov]
Sent: Thursday, April 04, 2013 10:17 AM
To: Smagula, Amy; Snook, Hilary
Subject: Asian clam

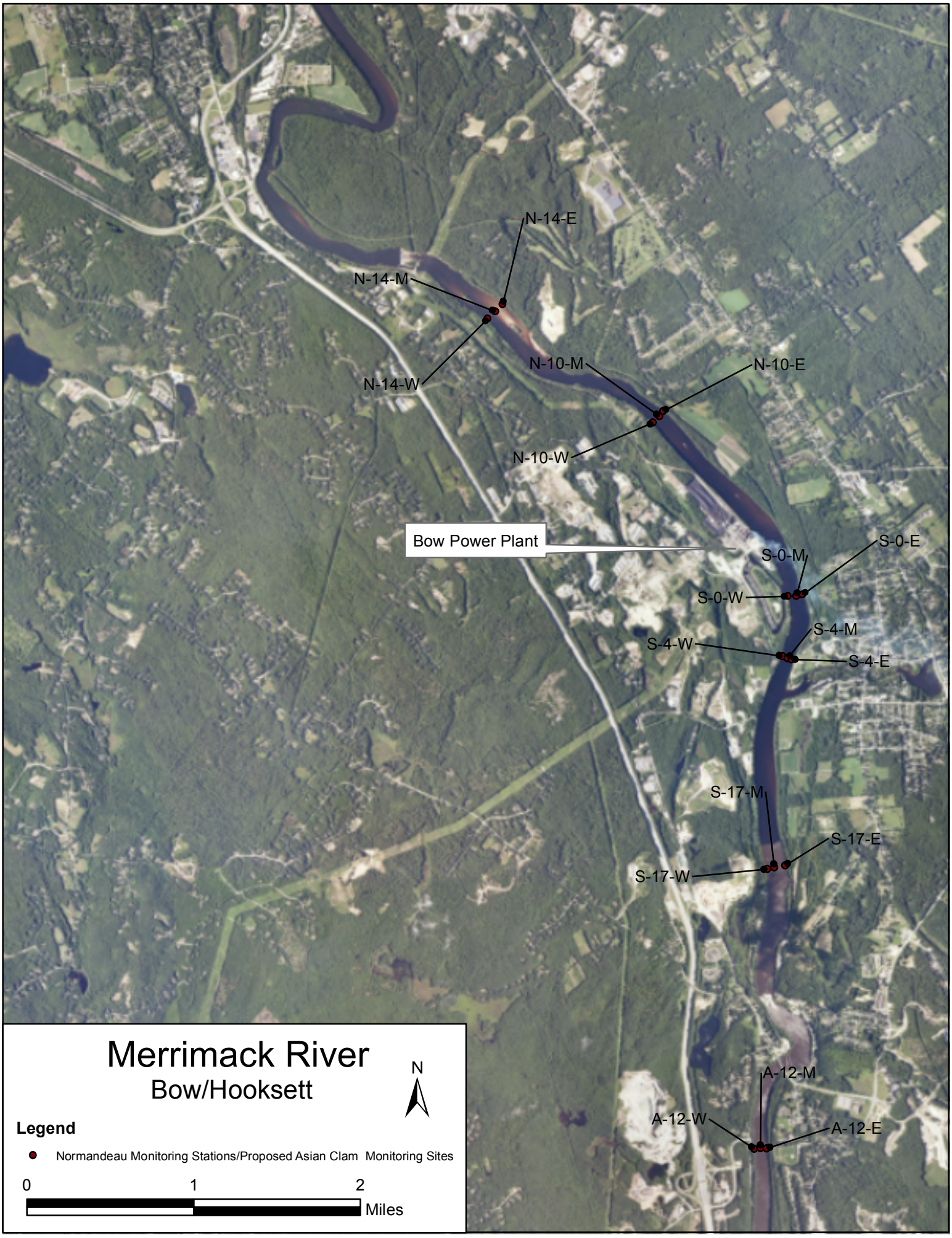
Hi:
Just checking on where we are with respect to the sampling plan. Let me know if you think we need to talk about anything.
Thanks.
Eric

Eric P. Nelson
Ocean and Coastal Protection Unit
Unit Dive Officer
U.S. Environmental Protection Agency
New England Region
5 Post Office Square, Suite 100
Mail Code OEP06-1
Boston, MA 02109-3912
Phone: 617-918-1676
email: nelson.ericp@epa.gov
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~


Merrimack River
Merrimack Area
N
Legend
Merrimack River South_Asian Clam Monitoring Points
0
0.5
1
Miles
Depot Street Boat Launch
Merrimack River Reeds Ferry Site
(MRRF)
River Access
Anheiser-Busch Brewery Site
(MRAB)
Anheiser-Busch Brewery Site
221 Daniel Webster Highway
Merrimack, NH 03054
(603) 595-1202


CP10
CP1
CP9
CP2
CP8
CP3
CP7
CP4
CP6
CP5
Cobbetts Pond
Windham
N
Legend
Cobbetts Pond Asian Clam Monitoring Locations
Points are set up on a 30m transect, points are located at shore, 15m and 30m along transect.
0
0.1
0.2
0.4
Miles


Long Pond
Pelham
N
Legend
Long Pond Asian Clam Monitoring Points
Points are set up on a 30m transect, points are located at shore, 15m and 30m along transect.
0
0.075
0.15
0.3
Miles
LP1
LP2
LP3
LP4
LP5
LP6
LP7
Camp Alexan
96A
HILLSBOR
MIDDLE
96
Long Pond
460
Kiwanis Camp
60
86.5
Mt Royal
Varnumtown
Double
45


N-14-E
N-14-M
N-14-W
N-10-M
N-10-E
N-10-W
Bow Power Plant
S-0-M
S-0-E
S-0-W
S-4-M
S-4-W
S-4-E
S-17-M
S-17-E
S-17-W
A-12-M
A-12-W
A-12-E
Merrimack River
Bow/Hooksett
N
Legend
Normandeau Monitoring Stations/Proposed Asian Clam Monitoring Sites
0
1
2
Miles

Activity	Activity Description
Northern Merrimack River Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, sediment collection for particle fractioning, substrate collection for mussel/clam ID and enumeration, install thermospheres, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Southern Merrimack River Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, sediment collection for particle fractioning, substrate collection for mussel/clam ID and enumeration, install thermospheres, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Cobbetts Pond Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, sediment collection for particle fractioning, substrate collection for mussel/clam ID and enumeration, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Long Pond Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, sediment collection for particle fractioning, substrate collection for mussel/clam ID and enumeration, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
July Chemistry Lab Work	Chemistry- calcium
July Sediment Lab Work	Sediment fractions
July Biology Lab Work	Mussel/clam ID and enumeration
Northern Merrimack River Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, substrate collection for mussel/clam ID and enumeration, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Southern Merrimack River Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, substrate collection for mussel/clam ID and enumeration, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Cobbetts Pond Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, substrate collection for mussel/clam ID and enumeration, video tape transects

Activity	Activity Description
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
Long Pond Site Visit	Water depth, Secchi depth, temp/DO, water column chemistry sampling, substrate collection for mussel/clam ID and enumeration, video tape transects
Lab Work	Bench top chemistry- pH, turbidity, conductivity, chloride
September/October Chemistry Lab Work	Chemistry- calcium
September/October Biology Lab Work	Mussel/clam ID and enumeration

Timeframe	Staff #	# Days	Hours/Staff	Equipment	#Sample Sites/Points	Cost
One field day in July	2 EPA, 2DES	1	16	2 boats	18	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in July	2 EPA, 2DES	1	16	2 boats	8	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in July	2 EPA, 2DES	1	8	2 boats	30	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in July	2 EPA, 2DES	1	8	2 boats	21	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
					77	
					77	
					77	
One field day in September/October	2 EPA, 2DES	1	16	2 boats	18	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in September/October	2 EPA, 2DES	1	16	2 boats	8	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in September/October	2 EPA, 2DES	1	8	2 boats	30	

Timeframe	Staff #	# Days	Hours/Staff	Equipment	#Sample Sites/Points	Cost
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
One field day in September/October	2 EPA, 2DES	1	8	2 boats	21	
3 hours in lab	1 DES Intern in DES Limnology Center	0.3	3	DES Limnology Center Benchtop Meters		
					77	
					77	

Asian Clam Monitoring Program
USEPA/NHDES Partnership
Summer/Fall 2013

Project: Asian Clam Monitoring Program

Justification: Asian clam (*Corbicula fluminea*) has been identified in the Merrimack River from Hooksett through at least Merrimack, in Cobbetts Pond in Windham and in Long Pond in Pelham, New Hampshire.

There has been no field work on this invasive freshwater clam species performed in New Hampshire to date, and additional information is needed on the density of the mussels present in the three documented locations, both to understand their populations in New Hampshire's waters, and gauge potential risk to water quality, native mussels and other benthic species.

Due to the low winter temperatures and ice formation in this part of the new England Region, it is believed that the Asian clam is at the northern extent of it's range, yet populations have developed and over-wintered.

Study Sites:

Site	# Transects	Total Number of Sites
Merrimack River North (Bow/Hooksett)	6	18
Merrimack River South (Merrimack)	2	8
Cobbetts Pond, Windham (344 acre lake)	10	30
Long Pond, Pelham (120 acre lake)	7	21

Objective: The purpose of this study is to compare the population densities in the two lake systems with the populations within and a distance downstream of a thermal plume on the Merrimack River, which could be potentially providing ideal habitat for higher reproduction rates of the clam.

The goal of the study would be twofold: 1) Determine the densities and distributions of Asian clam within each of the three listed systems, and 2) Determine if there is a density difference in thermally influenced reaches of the Merrimack River as compared with ambient conditions in the two natural lake systems and downstream reaches of the Merrimack River where there are no human-induced thermal influences. The project would involve setting up a collaborative between EPA and DES to develop a study, collect data and analyze the data to determine if there are any differences in clam densities between and

within the systems. The project would involve some field work (diving, ponar grabs, video surveys) and laboratory work (sorting sediments, identifying and enumerating clams and other species in the samples) and data analysis.

Timing: Late May/June 2013 and Late September/October 2013

Field procedures:

Each site is sampled for the full slate of parameters in May/June 2013, then a follow up field sampling will be performed for a short list of parameters in September/October 2013.

Parameter	**Method**	**Field/Laboratory**	**July/September**
Water Depth	Sonar or sounding	Field	Both
Secchi Depth	Std Method	Field	Both
Sediment-Water Temperature/DO	Temp/DO Meter or Multi-probe	Field	Both
pH (water column)	Multi-probe in field or sample collection then bench top meter in lab	NHDES JCLC	Both
pH (sediment)			Both
Turbidity	Bench top meter	NHDES JCLC	Both
Conductivity	Multi-probe in field or sample collection then bench top meter in lab	NHDES JCLC	Both
Chloride	Field collection and bench top meter	NHDES JCLC	Both
Calcium	Sample collection and laboratory analysis	EPA	Both
Flow/current velocity	Flow meter following standard methods	Field	Both
Sediment Fractions	Field sample collection, laboratory analysis	Field collection and EPA lab sorting (either by Wentworth size classes or similar)	July
Asian clam count and shell length and native mussel ID	Field sediment collection and laboratory sorting/enumeration	Field and EPA	Both
Long-Term Temperature Monitoring	Thermisters	Field	Duration
Veliger monitoring	Horizontal plankton net tow	Field/EPA flowcam or flow-through microscopy enumerator/ID	Both